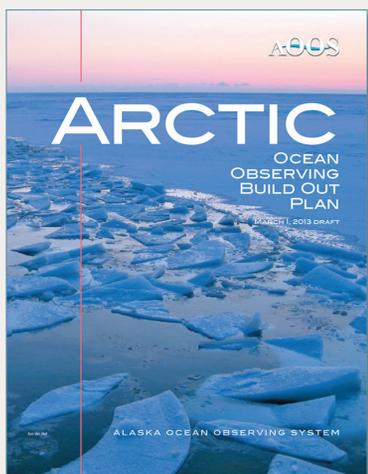


OBSERVING SYSTEM IN THE U.S. ARCTIC: OPPORTUNITIES AND CHALLENGES

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The 2013 Arctic Build Out Plan details the need for an ocean observing system in the far North. (Image courtesy Tom van Pelt)

Offshore hydrocarbon exploration, expanding ice-free navigation, and concern for climate change impacts offer new opportunities for developing a sustained ocean observing system along Alaska's Beaufort and Chukchi seas.

Recent initiatives by government agencies, industry, and academia have created a burst of new scientific data collection. More work is needed to maintain, expand and integrate these efforts in order to understand unique Arctic environments, promote safe maritime operations and inform decisions regarding human activities.

The Alaska Ocean Observing System (AOOS) has proposed an Arctic Buildout Plan to help facilitate integration of these efforts into a long-term Arctic observing system. A key component is the AOOS Arctic Portal, a tool that visualizes multiple data types to aid scientists, management agencies, spill responders, subsistence users and the public.

DATA PRODUCTS + VISUALIZATIONS

Atlas Home Explore About Download Glossary

Historical Sea Ice Atlas

Alaska sea ice, mid-1800s to the present

Explore

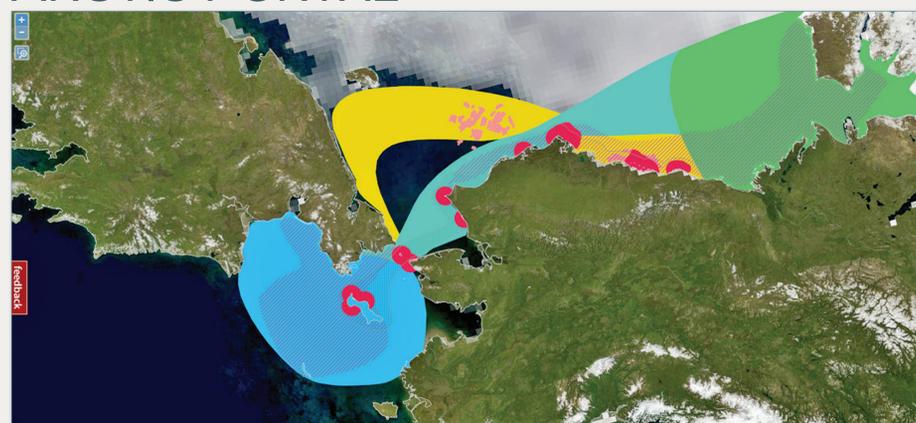
Use this Atlas
History, planning, and uncertainty
About

Download data
Use these data for your own analyses
Download

Learn about sea ice
Common terms and phenomena explained
Glossary

AOOS uses data collected by partners to develop products such as this Historical Sea Ice Atlas, featuring synthesized data since the 1850s.

ARCTIC PORTAL



The AOOS Arctic Portal allows users to overlay real-time data, model forecasts, GIS data and satellite imagery on a single interface. A data catalogue provides detailed information on layers, and a virtual sensor allows users to query time-series datasets at locations of interest. This screenshot shows seasonal bowhead whale distribution (blue, green, yellow), whaling community hunting areas (red), and active oil and gas leases (pink), as well as sea ice extent (white).

RESEARCH ASSETS MAP



Scientific research activity in the Arctic has increased substantially in the last few years. The Research Assets map shows the location and associated metadata for instruments and monitoring efforts prior to the summer field season to help scientists collaborate and improve the efficiency of data collection.

OBSERVATION PLATFORMS



Data collected via fixed and mobile platforms will be valuable for maritime operations, oil spill response, forecasting ocean currents and sea ice trajectories, and better understanding the dynamics of the Arctic ecosystem. Clockwise, from top left: glider, moorings, and high-frequency radar.

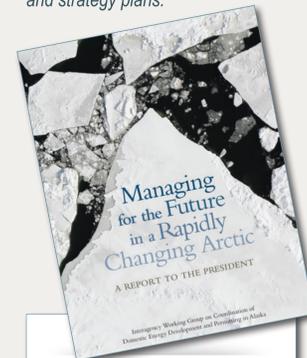
AOOS PARTNERS: AGENCIES, INDUSTRY, ACADEMIA

INDUSTRY-LED ENVIRONMENTAL STUDIES



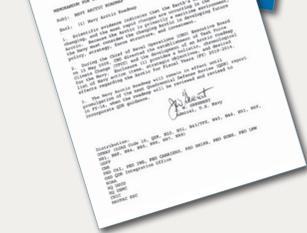
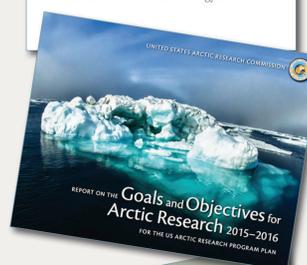
ConocoPhillips, Shell and Statoil USA funded the Chukchi Seas Environmental Studies Program (operated by Olgoonik/Fairweather LLC) from 2006-2014, collecting information about physical oceanography, water chemistry and atmospheric conditions, as well as on fish, seabirds and marine mammals. Shell continues to make major investments in Arctic Ocean and coastal ecosystem research. (Images courtesy Olgoonik/Fairweather LLC)

(Below) The Arctic is receiving increasing U.S. governmental attention, as evidenced by these recently released multiple research and strategy plans.



ARCTIC RESEARCH PLAN: FY2013-2017

Executive Office of the President
National Science and Technology Council



ARCTIC ECOSYSTEM INTEGRATED SURVEY



Government agencies are conducting multiple ecosystem studies such as this one led by University of Alaska researcher Franz Mueter to assess oceanography, lower trophic levels, crab and fish communities of the northeastern Bering and eastern Chukchi Sea. (Images courtesy Jared Weems and Arctic EIS)